

Constructing of Young Man Engineer Promotion Seminar that Applies the Idea of Separation in Time

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One aspect of TRIZ/USIT development strategy

Technological problem embarrassed because of current state

- ① It is possible to solve for myself.
 - ② If it is not a specialist in the trade, it is not good.
 - ③ It wants to try it new and not to fail.
- It is not possible to enter it easily.

What is not being possible to work easily for myself alone because the manufacturer is embarrassed now?

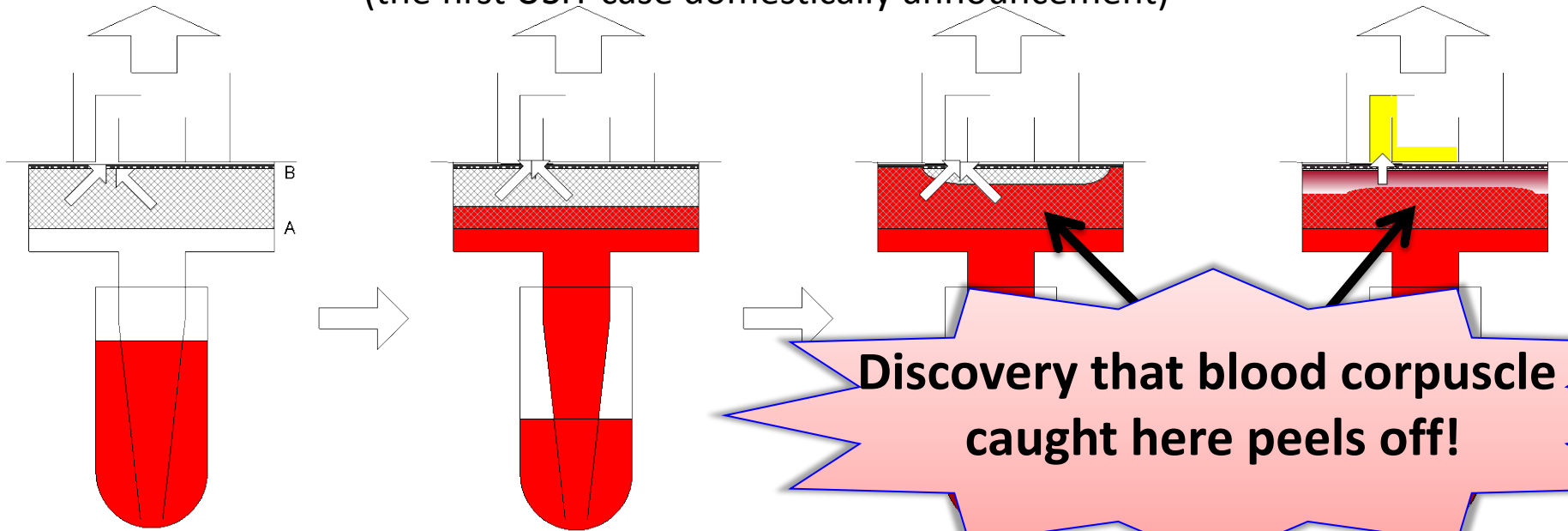
The young man engineer doesn't grow up.

How is TRIZ/USIT used for the young man engineer promotion?

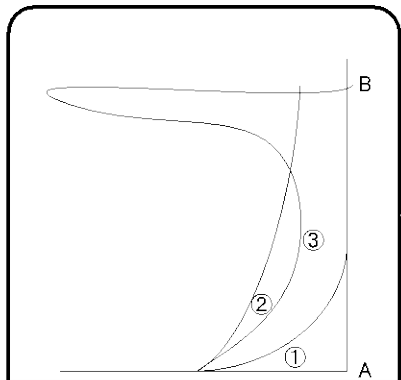
- ① The term named TRIZ/USIT is not used.
- ② The effect especially uses a large method by the TRIZ/USIT support.
- ③ It makes it to an easy way on which even the new man can work to advance.

An effective way to proceed at a plasma filter case

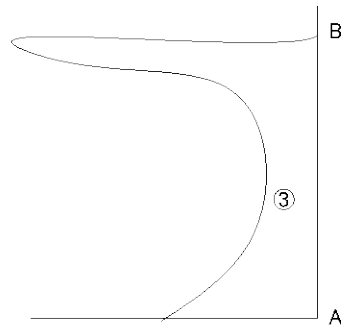
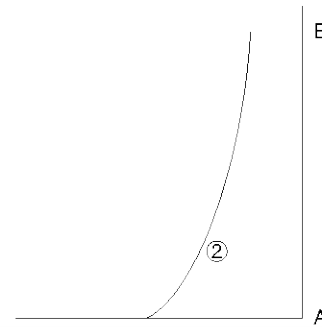
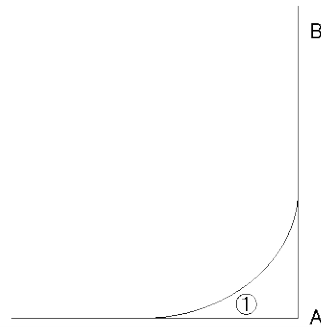
From the filtration performance improvement support of the blood corpuscle filtration filter
(the first USIT case domestically announcement)



Discovery that blood corpuscle caught here peels off!



時間的
空間的
変化
まとめ



The phenomenon that had not been noticed till then was able to be noticed by doing "Separation at time".

Method of focusing on phenomena (Named as "Story Charting Method")

1) Method for understanding of essence of technology (level the first grade of high-school) from knowledge of easy science

2) It is a method to see it as for the phenomenon that will be seen, and not seen actually

How to proceed:

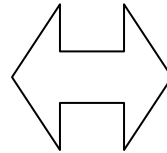
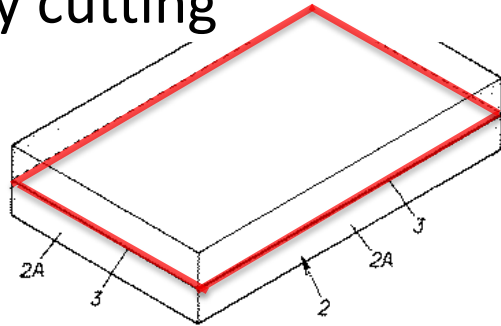
- ① Time is chased like the story and the phenomenon is shown in figure.
- ② The phenomenon is understood while showing in figure.

- ① Even if the professional skill power is not high, it is safe.
- ② Old-timer engineer's technological problem solving power is actually improved.

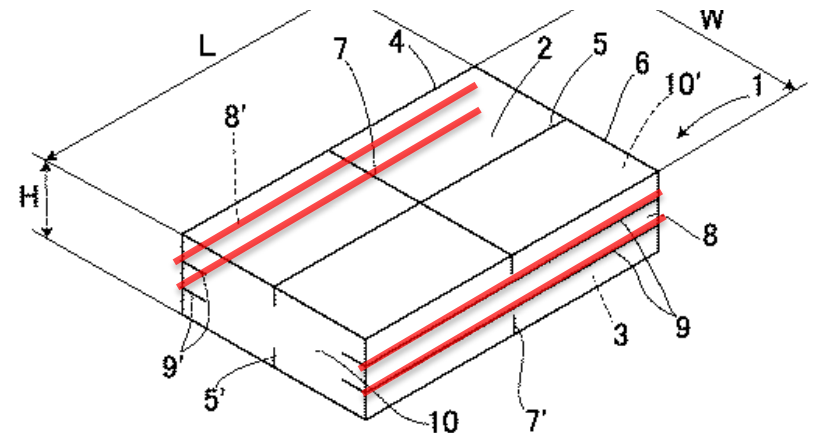
Young man engineer promotion seminar case where cutting rice cake is assumed to be theme

Part that became issue

Echigo confectionery:
Puffy cutting



Sato food: Pari and slit



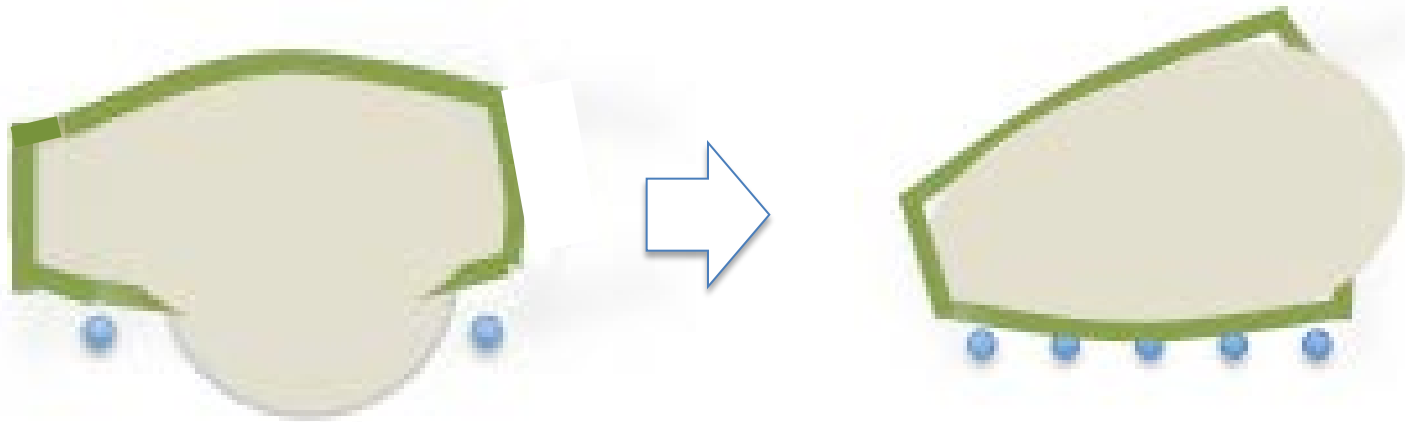
March 22, 2012

The Intellectual Property High Court decision: To the Sato food

- ① It is payment of about 800 million yen to the Echigo confectionery.
- ② Sales discontinuance of side of product that cuts it
- ③ Abandonment of manufacturing facilities for side incision

Will other methods not have been devised?

Target of maneuver



It spouts from the lower side.

[Pakkuri] cracks because of the side.

(The side incision none.)

Mechanism imagination procedure of the trouble phenomenon

(Think in a manner to have become the object itself)

< how to advance it: Analysis phase >

- 1.The explanation of the problem situation is written.
- 2.The story world is decided.
- 3.The start and the end of the causal relation are decided.
- 4.Characters (thing) are decided.

< purpose >

The problem situation is correctly understood.

The thought range (space) is limited.

The thought range (time) is limited.

The thought object (thing) is limited.

5.The scene (scene frame) is decided.

It thinks at the time of the thing.

- 6.It explains the phenomenon of each scene frame.
- 7.The phenomenon of each scene frame is made figure.
- 8.MVP * of each scene frame is decided.

Thing..related..think.

Thing..related..think..image.

**The relations in the most important
are decided.**

*Most Valuable

Unit Phenomenon (most important phenomenon)

“Determining the scene (framing)” means

To intentionally put a “discontinuity” in time

Concrete work

= It gives a name to the scene divided separately by the flexion point.

Element that becomes flexion point:

- ① Change in level of function, property value, and state
- ② Movement of energy/power/thing

Method of scene framing: Use of "Characteristic method of space and time"

1) The characteristic that seems to change by time is enumerated.
→ Color, hardness, temperature, volume, and surface-roughness etc.

2) Importance or the characteristic that knows is chosen.
→ "Surface temperature on upper and lower sides"

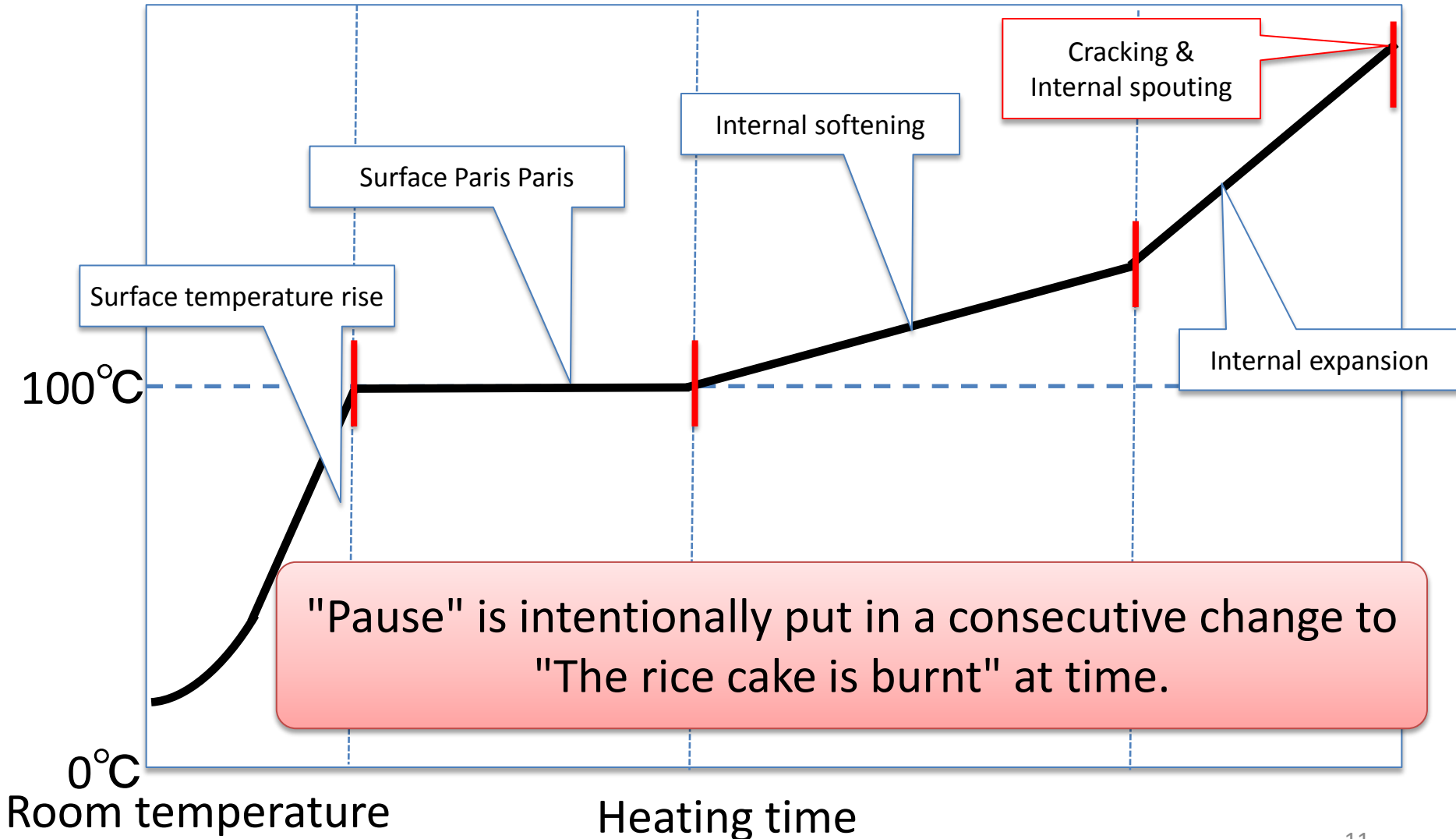
3) Plots a graph imagining how chosen characteristic changes according to time. → slide 11 that

4) The graph is found changing (flexion point).
→ 11 red slide vertical line: |


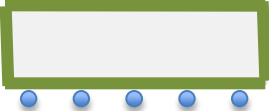


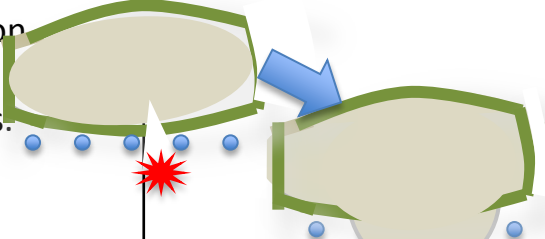
5) The scene is divided before and behind the flexion point thought to be important.

→ Spouting of 11 slide each scene name

Presumed surface temperature change when baking cut rice cake



Scene development chart (What is happenig there?)

	Scene Frame	Illustration of phenomenon	Explanation of phenomenon	MVP
1	Surface temperature Rise		①The temperature on upper and lower sides of the rice cake goes up by the heater radiation. ②The temperature on the rice cake side goes up by the air convection.	The surface temperature goes up.
2	Surface Paris Paris →Moisture sealing up		①The whole face is dehydrated. ②Starch becomes hard. ③The omission of moisture stops.	The surface hardness goes up. Moisture is sealed up.
3	Internal softening		①The corner rounds. ②Internal starch softens by moisture + heat.	Internal starch softens.
4	Internal expansion		①Steam expands and the volume expands. ②Inner pressure is received, and the entire rice cake swells.	Steam expands.
5	Crack Formation →Inside It gushes.		①The part where the surface coat is weak cracks. ②A soft internal rice cake spouts from the crack.	①The weakness part cracks. ②The rice cake spouts from the crack.

Effect on young man engineer promotion by "Story charting method"

1.Improvement of technological content understanding

It thinks by using simple figure to guide the time of the thing.

→The essence of the technology is acquired by minimum expertise power.

2.Improvement of the entire technological grasp force

The scene development chart where the entire technology of a large problem is included is drawn.

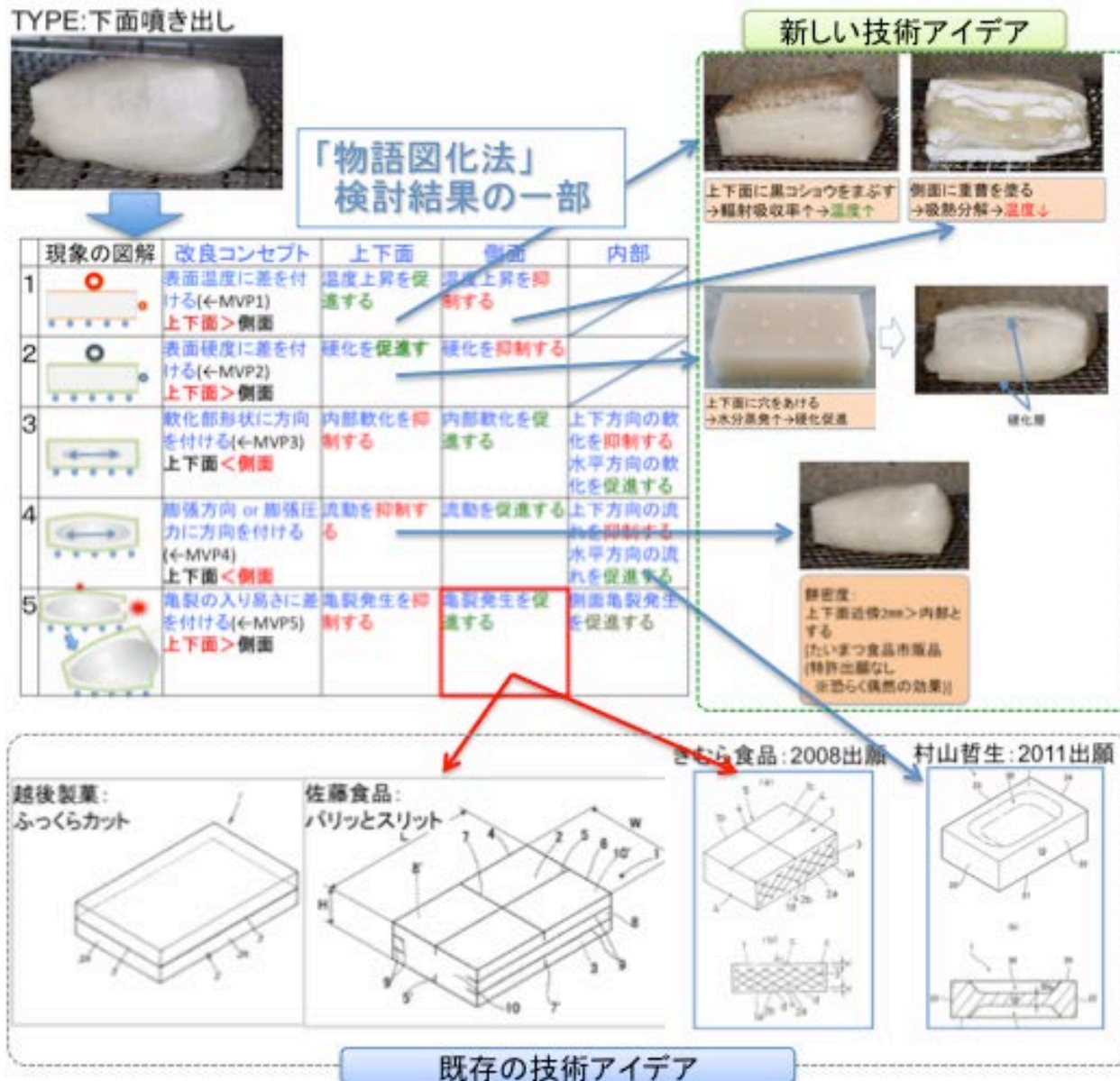
→The relation between the field and the whole of which I take charge is understood at one view.

3.Improvement of technological communications power

The hypothesis is naturally drawn out without impossibility.

→A technical discussion can be done without so considering the hierarchical relationship.

Usage example as a patent map



Students' impressions

- A decentralized phenomenon and data were able to be brought together. It was possible to discuss it all at the conference based on it.
- I thought that the more idea was able to be arranged by making the phenomenon the scene frame and illustrating it, and the leakage of the idea seemed to be lost.
- It has been understood to be able to extract the problem by thinking by making it to the order.

Summary

- The methodology that the young man engineer acquired the technology at the early stage was able to be constructed by using the idea of the time separation.
- It is possible to separate to the phenomenon that relates mutually by applying the characteristic method of the space time in the product of a material system not limbate at time.
- It was confirmed that a decentralized phenomenon was able to be brought together by using this methodology, and there was an effect of promoting the discussion.